

SEMESTER-II

POST GRADUATE DIPLOMA IN MEDICAL LABORATORY TECHNIQUES

PAPER DLTO 01: APPLIED MICROBIOLOGY

Learning Objective: To provide students with theoretical and practical understanding of Applied microbiology

Learning Outcome: The student should be able to understand theory and practical aspects of Applied Microbiology

THEORY

Duration: 36 Hrs

MODULE 1:

1. Microscopes - detailed account of structure, working principle, applications
2. Collection, handling and transport of samples
3. Culture methods
4. Methods for laboratory identification of bacteria
5. Maintenance of stock cultures
6. Common therapeutic agents
7. Antimicrobial susceptibility testing

MODULE 2:

1. Infection - sources, modes of transmission of infection, types of infectious diseases
2. Immunity - Innate, Acquired, Active, Passive
3. Vaccines - storage, transport, Immunization schedule
4. Hospital Acquired Infections
5. Biomedical Waste Management
6. Standard Precautions
7. Needle stick injury - Prevention and Management

MODULE 3:

1. Laboratory diagnosis of UTI
2. Laboratory diagnosis Diarrheal diseases
3. Laboratory diagnosis of Cholera
4. Laboratory diagnosis of Meningitis
5. Laboratory diagnosis of PUO
6. Laboratory diagnosis Respiratory infections
7. Laboratory diagnosis of Pyogenic infections - Superficial and Deep
8. Laboratory diagnosis of Anaerobic infections (Spore bearing and Non spore bearing bacteria)
9. Laboratory diagnosis of STIs
10. Programmatic management of Tuberculosis
11. Quality Control in Microbiology
12. Inventory / Stock Management

PRACTICALS

hrs

15 x 3

1. Procedures for collection of samples - blood, urine, stool, swab, transport media use
2. Identification of bacteria - colony morphology, biochemical tests
3. Antimicrobial susceptibility testing
4. Demonstration of vaccines
5. Biomedical Waste Management
6. Standard Precautions
7. Laboratory diagnosis of UTI - Practical aspects
8. Laboratory diagnosis Diarrheal diseases - Practical aspects
9. Laboratory diagnosis of Meningitis - Practical aspects
10. Laboratory diagnosis of PUO - Practical aspects
11. Anaerobic culture methods
12. Laboratory diagnosis of STIs - Practical aspects
13. Practical aspects of Management of Tuberculosis

Reference Books:

1. Kanungo (2017) Ananthanarayan and Paniker's. textbook of Microbiology, Universities Press
2. Baveja, C. P. and V. Baveja. (2015) Textbook of Microbiology for Medical Laboratory Technicians, Arya Publications
3. Baveja C.P. (2018) Textbook of Microbiology, Arya Publications
4. Apurba Sankar Sastry and Sandhya Bhat K. (2018) Essentials of Medical Microbiology, Jaypee Publications